

SOKOLOV, N.N.; PARFANOVICH, M.I.; MEKLER, L.B.

On the nature of tick-borne encephalitis virus. II. A comparative study of nucleic acids and specific antigen in cells from brains of white mice infected with tick-borne encephalitis virus by fluorescence microscopy. *Acta virol.* 7 no.3:217-224 My '63.

1. Ivanovsky Institute of Virology, U.S.S.R. Academy of Medical Sciences, Moscow.

(ENCEPHALITIS)	(ENCEPHALITIS VIRUSES)	(ANTIGENS)
(DNA, VIRAL)	(RNA, VIRAL)	(NEURONS) (HIPPOCAMPUS)
(CEREBELLAR CORTEX)	(MICROSCOPY, FLUORESCENCE)	

SOKOLOV, Nikolay Mikhaylovich; KOSTINA, V., red.

[Spot welding of small-size parts] Tochechnaia svarka malo-
gabaritnykh detalei. Saratov, Saratovskoe knizhnoe izd-vo,
1953. 118 p. (MIRA 17:5)

80775

S/137/60/000/03/06/013

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No 3, p 148,

5599

18.7200

AUTHOR:

Sokolov, N.M.

TITLE:

Changes in the Contact Resistance of Metals During Spot Welding 18

Process

PERIODICAL:

Sb. nauchn. soobshch. Saratovsk. avtomob.-dor. in-t, 1958,
No 14, pp 41 - 43

TEXT:

The author investigated changes in the contact resistance in spot welding of 0.2 - 0.3 mm thick Al HO (INO) Ni-plates. The compressive force of the electrodes and the amplitude value of the current were variable, whereas the welding time was constant (10 msec). Contact resistance variation curves were obtained by dividing the voltage loss values on the parts during welding by the corresponding welding current values. They characterize kinetics of the process of the spot nucleus formation. The contact resistance curve has two maxima. If current is switched in, the contact resistance increases rapidly on account of the heat, from the initial "cold" contact resistance to its

80775

S/137/60/000/03/06/013

Changes in the Contact Resistance of Metals During Spot Welding Process

maximum value. Then the increase in the contact resistance is interrupted on account of higher metal ductility and increased electrode pressure. Further heating causes a sharp increase in the electrode pressure, the contact surface extends and the contact resistance drops. The formation and normalization of the nucleus takes place. During normalization of the nucleus the heating causes again an increase in the contact resistance up to a second maximum. It drops if the current is switched out and the temperature decreases.

A.P.



Card 2/2

80776

S/137/60/000/03/07/013

The Photoelectric Method of Measuring the Temperature in the Boundary Layer of Plates During Contact Spot Welding

The light flow of the metal, heated up by welding of plates a and b is used for film recording with the aid of a photocell. By taking into account the short time of the welding spot formation, it is assumed that the exposure of the spot nucleus during welding process will not cause any noticeable cooling of the nucleus metal and that the measured temperature will be the same as in conventional welding when the nucleus is not being exposed. The curve of photocurrent values obtained by recording on the oscillogram is re-calculated into the temperature values on the basis of the preliminary device calibration. The block diagram of the calibrating device is given, as well as the principal circuit of the electronic amplifier and data of circuits. The technique of the experiment is described and results of temperature measurement in welding 0.2 mm thick Ni-plates are given. It is pointed out that the photoelectric method of measuring the temperature during welding process makes it possible to carry out founded theoretical investigations of thermal fields and to devise optimum welding conditions.

Card 2/2

A.F.

S/137/62/000/004/175/201
A154/A101

AUTHOR: Sokolov, N.M.

TITLE: Principles of calculating a transformer for resistance welding of non-ferrous metals

PERIODICAL: Refereativnyy zhurnal, Metallurgiya, no. 4, 1962, 44, abstract 4E243 ("Tr. Saratovsk. in-ta mekhaniz. s. kh.", 1959, no. 16, 85 - 93)

TEXT: Resistance welding of non-ferrous metals makes higher demands on maintenance of given welding regimes as compared with ferrous metals. Calculation is given of a welding transformer for resistance welding of non-ferrous metals ensuring stability of the welding current magnitude from one welding operation to another, irrespectively of fluctuations of the contact resistance.

V. Klyuchnikova

[Abstracter's note: Complete translation]

Card 1/1

S/137/61/000/002/012/046
A006/A001

Translation from: Referativnyi zhurnal, Metallurgiya, 1961, No. 2, pp. 2-3, #
2E19

AUTHOR: Sokolov, N. M.

TITLE: Method of Measuring the Temperature of the Boundary Layer in Dis-
similar Metals During Resistance Welding Using Thermo-emf

PERIODICAL: "Tr. Saratovsk. in-ta mekhaniz. s. kh.", 1960, No. 20, pp. 3 - 6

TEXT: To determine the nature of temperature changes in the boundary zone
of dissimilar metals joined by resistance spot welding process, it is suggested to
use the method of thermo-emf; emf are developed by the parts themselves during
welding. Measurements are made twice at different polarities of the welding cur-
rent (or changing the positions of parts being welded) the actual value of thermo-
-emf is determined as the difference of two measurements, divided by 2. The
method was checked when welding Cu + constantan and Fe + constantan plates.

G. N.

Translator's note: This is the full translation of the original Russian abstract.

Card 1/1

S/137/61/000/002/019/046
A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1961. No. 2, pp. 24-25 #
2E194

AUTHOR: Sokolov, N. M.

TITLE: The Effect of Surface-Treating Metals to be Welded on the Strength
of Weld Joints in Spot Welding.

PERIODICAL: "Tr. Saratovsk. in-ta mekhaniz. s. kh.", 1960, No. 20, pp. 15-22

TEXT: An investigation was made of the effect of surface treatment on the
strength of 0.1 mm thick joints produced by resistance spot welding. The speci-
mens were welded of Armco-Fe sheets with different surface treatment: pure Fe;
blued, carburized, (blackened Fe); white aluminized and blackened aluminized Fe.
Prior to welding the plates were degreased with benzine. Specimens were welded
on the W.020.003 (I.020.003) machine under constant conditions during 20 μ /sec.
During welding process the current and the voltage drop on the parts were record-
ed and used to calculate changes in the resistance time during the contact. The
specimens welded were subjected to static breaking tests. Highest shearing
strength is observed in specimens welded without artificial surface treatment;

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S/137/61/000/002/019/046
A006/A001

The Effect of Surface-Treating Metals to be Welded on the Strength of Weld Joints in Spot Welding.

lower strength in blued Fe; the lowest in aluminized Fe. According to data of oscillographic recordings the author determined the amount of pulse power consumed for welding, and calculated the approximate temperatures developed in the central zone. Computational data show that the formation of a welded spot in Fe proceeds at temperatures exceeding the melting temperature. It is recommended to carry out spot welding heat calculations for the boiling temperature of the metal. There are 9 references.

A.P.

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

12300

S/137/61/000/002/022/046
ACC6/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1961, No. 2, p. 26 # 2E205

AUTHORS: Sokolov, N. M., Komarov, Ye. I.

TITLE: ~~Referativnyy zhurnal~~
The Effect of the Pulse Shape and the Time of Action of the Welding Current on the Strength of the Weld in Resistance Spot Welding of Non-Ferrous Metals

PERIODICAL: "Tr. Saratovsk. in-ta mekhaniz. s-kh.", 1960, No. 20, pp. 23 - 27

TEXT: For welding non-ferrous metals with high contact electric resistivity the authors suggested a new circuit of the welding pulse generator. The circuit assures preheating at low current and welding at high current pulses. A comparison of results from welding sheet aluminized Fe, 0.2 mm thick, with 0.5 mm diameter platinum wire, on the W 020.005 (I.020.005) machine (welding time - 6 to 7 msec, by one current pulse) and on the new machine (110 msec) has shown that the new circuit ensures welding without burning and poor fusion and reduces straggling of strength data by a factor of 4.4.

G.N.

Translator's note: This is the full translation of the original Russian abstract.

Card 1/1

S/137/61/000/002/020/046
A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1961, No. 2, p. 26 # 2E203

AUTHORS: Sokolov, N. M., Komarov, Ye. I.

TITLE: Welding Pulse Generator with Extended Range of Welding Conditions

PERIODICAL: "Tr. Saratovsk. in-ta mekhaniz. s. kh.", 1960, No. 20, pp. 29-32

TEXT: Investigations have shown that the time of resistance spot welding of thin parts when extended from 2-20 to 60 msec. considerably improved the quality of weld joints. The described method of proportioning the welding power makes it possible to change welding time from 20 to 140 msec. The proportioning device of the welding pulse generator is assembled according to the conventional circuit with antiparallel connected ignitrons. The welding time is determined by RC-circuits. The suggested circuit can be employed for group feed of low capacity resistance spot welding machines. ✓

V. S.

Translator's note: This is the full translation of the original Russian abstract.

Card 1/1

20223

1 2300

S/196/61/000/003/001/001
E073/E535

AUTHOR: Sokolov, N. M.
TITLE: Generator of Welding Pulses of Increased Accuracy
PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika,
1961, No.3, p.41, abstract No.3K250. Tr. Saratovsk.
in-ta mekhaniz. s.kh., 1960, No.20, pp.43-54
TEXT: The welding pulse generator was developed by
NII MPSS primarily for welding non-ferrous metals. It operates
on the basis of a condenser circuit for striking ignitrons.
The welding pulse circuit does not contain any relaxation
oscillator. The circuit breaker of the welding current functions
itself as a frequency divider, whereby the coefficient of
frequency division is 2:1 (a frequency of 25 c.p.s.) and is
determined by the structure of the circuit itself. A circuit
diagram is given. 1 bibliographic reference. ✓

[Note: The above text is a full translation of the original
Soviet abstract.]

Card 1/1

S/137/61/000/002/025/046
A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1961, No. 2, p. 26 #2E208

AUTHOR: Sokolov, N. M.

TITLE: Investigation of a Welding Transformer Under Short-Circuit Conditions

PERIODICAL: "Tr. Saratovsk. in-ta mekhaniz. s.-kh.". 1960, No. 20, pp. 71-86

TEXT: Precision resistance spot welding of small-size non-ferrous metal parts require high constancy and reproducibility of the welding conditions. Welding transformers do not operate, as a rule, under full short-circuit conditions when welding thin parts. The secondary circuit of the transformer is characterized by the equation $Z_2 \approx R_2 + R_n$, where Z_2 is the full resistance of the transformer winding, R_2 is the active resistance of the current conducting circuits, and R_n is the resistance of the parts to be welded. Since the value R_n varies during the welding process and is different for dissimilar metals, the liberation of heat energy in R_2 and R_n varies too. This is the indeterminate factor in the problem of maintaining the welding conditions. The independence of the welding current on $R_2 + R_n$ may be assured by increasing the dispersion of the transfor-

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S/137/61/000/002/025/046
A006/A001

Investigation of a Welding Transformer Under Short-Circuit Conditions

mer. The constancy of the dispersion magnitude of the transformer will ensure the reproducibility of the conditions as to the welding current. In this connection the author recommends higher values of idle-run secondary voltages of welding transformers. There are 15 references.

V. S.

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

22240
S/125/61/000/001/010/016
A161/A133

1.2300

AUTHOR: Sokolov, N.M.

TITLE: Measuring the interelectrode pressure in spot welding of small parts

PERIODICAL: Avtomaticheskaya svarka, no. 1, 1961, 64-66

TEXT: A piezoelectric quartz pickup design (Fig.2) is suggested for the measurement and recording of insignificant electrode compression stresses in welding parts of under one millimeter thickness. The reason of the suggestion is that the common wire pickups are not sufficiently sensitive and need amplifiers. The place of the suggested pickup on the spot welder is shown in the diagram of Fig.1. Bottom electrode (1) moves freely in holder (2) and its bottom end rests on piezo-pickup (3); flexible bridge (4) connects the electrode with the bottom bracket of the machine. All fluctuations of the electrode compression stresses are transmitted to the pickup and may be oscillographed. The pickup (Fig.2) has a steel base (2) which is screwed into silumin plate (1). Quartz crystals (3,4) are put together so as to produce

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Measuring the interelectrode pressure ...

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S/125/61/000/001/010/016
A161/A133

negative charges on shell (5) when being compressed. The negative charges are transmitted by coaxial cable (A) to the input of amplifying system (Fig.3). Crystal (4) (in Fig.2) is attached to the steel cushion of the casing and supported by a squeezing ring. Crystal (3) moves freely in shell (5). The crystals are protected mechanically by corrugated bushing (6). Brass piston (7) fits freely but tightly in the bushing top and transmits the pressure from membrane (8) to the crystals. The central pickup portion with the crystals is screwed in with some strain, for a precompression of the crystals is necessary to reduce the errors during the operation. The pickup signal is transmitted to the control grid of the electrometric RV12p2000 tube (in Fig. 3). Any change of the number of charges charging or discharging the capacitance C must cause proportional voltage changes in its plates. The RV12p2000 tube operates on a straight section of the characteristic, and this ensures proportionality between the pressure and the anode current values. The rest of the system is the usual amplifying system that is fed with stabilized and levelled rectified voltage. The circuit of the electrometric tube is screened. The electric charges in the grid circuit are dropped with the aid of push button B after every measurement; the system is zeroed with the R₁₄ resistor. The milliammeter is used as zero indicator. The 30 and III leads in-

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22240

Measuring the interelectrode pressure ...

S/125/61/000/001/010/016
A161/A133

dicade the connection places for the electronic oscillograph and the magneto-electric system oscillograph. The system has been used on an -020-003 (I-020-003) spot welder in welding aluminum plated steel 0.3 + 0.3 mm deep, with an initial electrode compression stress of 10 kg. An oscillogram (Fig.4,a) illustrates the pressure variations in a welding machine with electromagnetic pressure mechanism. The inertia of mobile parts in the circuit and drive caused considerable pressure fluctuations in welding process. The other oscillogram (Fig.4,b) shows inter-electrode pressure with the top electrode suspended on a spring-mounted hanger. As can be seen, the electrode pressure was constant. The oscillations about the mean pressure value are the result of vibrations in the spring and can be eliminated by absorbers. The measurement is sufficiently accurate and stable, and requires no complicated calculations. There are 4 figures and 1 Soviet-bloc reference.

ASSOCIATION: Saratovskiy institut mekhanizatsii sel'skogo khozyaystva im. M.I.Kalinina (Saratov Institute for the Mechanization of Agriculture)

Card 3/63

33816

S/137/62/000/001/096/237

A052/A101

12300

AUTHOR: Sokolov, N. M.

TITLE: Determination of welded joint quality and of weldability of small non-ferrous parts at resistance spot welding

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 15, abstract 1E80 ("Tr. Saratovsk. in-ta mekhaniki s. kh", no. 24, 1961, 29-38)

TEXT: The method of evaluating the quality of a spot welded joint of non-ferrous metals is proved. Furthermore the problem is set of evaluating the mechanical properties of a welded joint by microhardness, shearing force, size of core crystals and the degree of penetration (in % of metal thickness). Ni plates 0.2, 0.3, 0.4 and 0.5 mm thick and aluminized Fe 0.2 mm thick, but with different thickness of the intermediate Al_2Fe_3 layer between the Al-coating and Fe-base, were investigated. It is shown that the quality of Ni welded joint cannot be characterized by the size of crystal grains, since no regularity of their change depending on welding conditions is observed. The degree of penetration is sensitive to the changing conditions: an acceptable quality of welding corresponds to 40 - 85% penetration. When investigating the aluminized

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Determination of welded joint quality ...

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A052/A101

Fe welded plates, the mechanical properties of metal zones subjected to thermal treatment were characterized by the percentage relation of the hardness of these zones to the hardness of the base metal. The evaluation of quality of aluminized Fe joint, as well as at welding Ni plates, is in a good agreement with the evaluation by microphotographs. Tensile force F cannot characterize the quality of welded joints because of contradictory indications. Not the high F values should be aimed at, but a higher degree of penetration and a lower relation of hardnesses. Thus the degree of penetration is one of the main criteria of the quality of welded joints. X

V. Tarisova

[Abstracter's note: Complete translation]

Card 2/2

S/137/62/000/001/093/237
A052/A101

AUTHORS: Sokolov, N.M., Belousova, M.A.

TITLE: On the spot temperature at resistance welding

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 1, 1962, 7, abstract 1E36
(Tr. Saratovsk. in-ta mekhaniz. s. kh., no. 24, 1961, 51 - 57)

TEXT: The spot temperature in the process of resistance welding of Fe and constantan plates was investigated. The welded plates 0.1 mm thick were used as a thermoelectric couple. At the same time the welding current and the voltage drop were recorded with an oscillograph. The experiments were carried out at different currents and pressures on electrodes. Conclusions: 1) the force on electrodes at welding affects the temperature of the forming nucleus of the spot. 2) The optimum value of this force should be selected in combination with the other welding parameters. 3) The part played by pressure in the welding process can be evaluated only under stabilized welding conditions; this will enable one to determine the true temperature at the nucleus of the spot and to relate them to the physico-mechanical properties of the welded joint. V. Tarisova
[Abstracter's note: Complete translation]

Card 1/1

41676

S/137/62/000/009/028/033
A006/A101

1.2200
AUTHOR:

Sokolov, N. M.

TITLE:

Stabilizing the spot welding process by ultrasonic treatment of part surfaces

PERIODICAL:

Referativnyy zhurnal, Metallurgiya, no. 9, 1962, 5 - 6, abstract 9E27 ("Tr. Saratovsk. in-ta mekhaniz. s. kh.", 1961, no. 27, 53 - 64)

TEXT:

It is stressed that in large-scale production, where spot welding is a basic technical process, it is extremely important to maintain constant welding conditions when invariable physical and mechanical properties of welded joints are probable to be secured. The existing welding equipment does not assure a satisfactory reproducibility of the welding conditions due to changes in the contact resistance of parts, R_c , during the welding process. It is usually considered that the amount of heat $I_{weld}^2 R_c$, developed in the contact resistance by welding current I_w must be constant. An investigation was carried out to check whether this conventional concept was correct. To comply with conditions

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Stabilizing the spot welding process...

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A006/A101

$I_{weld}^2 R_c = \text{const.}$, measures were taken for stabilizing R_c . Plate pairs of dissimilar metals were subjected to 2-minute ultrasonic treatment at 17 kc frequency in a trichloroethylene bath. Welding experiments were carried out 48 hours after ultrasonic treatment. The experimental results were compared with those obtained by conventional welding of the same metal plates, whose surfaces were merely degreased. Welding was performed on a M-9 machine at invariable 7.8 kg pressure between the electrodes. The investigation performed is insufficient to draw final conclusions; however, it can be considered to a certain degree of probability that the welding process obeys another law than $I_w^2 R_c = \text{Const.}$ In this other law the free manifestation of the physical properties of the metal must be taken into account. In the proposed rule $I_w = \text{Const}$, independent of variations in R_c , the automatic changes of welding conditions, depending on the variable physical state of the welded metals, are already considered.

V. Tarisova

[Abstracter's note: Complete translation]

Card 2/2

SOKOLOV, Nikolay Mikhaylovich; SHABLYGIN, Spartak Vasil'yevich;
GARGALA, Vladimir Dmitriyevich; KOSTINA, V., red.

[Handbook for the electric welder] Spravochnik elektro-
svarshchika. Saratov, Privolzhskoe knizhnoe izd-vo,
1964. 174 p. (MIRA 18:3)

L 53045-65 EWT(d)/EWA(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l) Pf-4

ACCESSION NR: AR5009003

S/0137/65/000/002/E039/E039
621.791.763.7

17
6

SOURCE: Ref. zh. Metallurgiya, Abs. 2E274

AUTHOR: Sokolov, N. M.

TITLE: Electrical equipment for precision spot welding

CITED SOURCE: Nauchn. tr. Saratovsk. in-t mekhaniz., vyp. 36, 1964, 208 str.

TOPIC TAGS: metalworking, welding, spot welding

TRANSLATION: The monograph represents the result of 12 years of research by the author in the field of spot welding of small parts widely used in the electrical engineering industry. The object of the research was the development of design standards for rational welding equipment and of guidelines for research on precision welding processes. The monograph has three parts: 1) special characteristics of electrical and thermal processes in spot welding of small-dimension parts; 2) electric power sources for low-capacity welding equipment; 3) automatic regulation

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L 53045-65

ACCESSION NR: AR5009003

of welding current. All the recommendations in the monograph have been tested in production. The monograph can be recommended to scientific workers engaged in research on processes for spot welding of small-dimension parts and also to designers of low-capacity spot welding equipment and automatic regulating apparatus. T. Kislyakova.

SUB CODE: MM, EE

ENCL: 00

BAB
Card 2/2

ACC NR: AP6017971

(A)

SOURCE CODE: UR/0413/66/000/010/0062/0062

INVENTORS: Sokolov, N. M.; Klements, A. B.; Bozhko, Yu. I.

ORG: none

TITLE: A method for contact welding. Class 21, No. 181759

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 10, 1966, 62

TOPIC TAGS: welding, pulse welding, metal welding, welding technology

ABSTRACT: This Author Certificate presents a method for contact welding by the use of monopolar pulse. To improve the quality of welding, the pulse is formed of two parts following one another. The first is used for heating the details, and the second is used directly for welding.

SUB CODE: 13/ SUBM DATE: 06Apr64

UDC: 621.791.763

Card 1/1

BOKUNYAYEV, A.I., inzh., red.; ~~SOKOLOV, N.M.~~, kand. tekhn. nauk,
red.; RZHANITSYN, B.A., red.; KLIMOVA, G.D., red.izd-va;
MOCHALINA, Z.S., tekhn. red.

[Construction specifications and regulations] Stroitel'nye
normy i pravila. Moskva, Gosstroizdat. Pt.3. Sec.B. ch.5.
[Stabilization and artificial firming of soils; regulations
for the organization, performance, and acceptance of work]
Stabilizatsiia i iskusstvennoe zakreplenie gruntov; pravila
organizatsii, proizvodstva i priemki rabot (SNiP III-B.
5-62). 1963. 23 p. (MIRA 16:9)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam
stroitel'stva. 2. Nauchno-issledovatel'skiy institut osnova-
niy i podzemnykh sooruzheniy Akademii stroitel'stva i arkhi-
tektury SSSR (for Rzhnitsyn).

(Soil stabilization)

SOKOLOV, Nikolay Makarovich; LEPLINSKIY, M.P., red.; BORUNOV, N.I.,
tekhn.red.

[Universal ring-out apparatus] Universal'nyi prozvonochnyi
apparat. Moskva, Gos.energ.izd-vo, 1960. 11 p. (Biblioteka
elektromontera, no.16). (MIRA 13:11)
(Electric testing)
(Electronic apparatus and appliances)

SOKOLOV, N.M., agronom

Without additional expenditures. Zashch. rast. ot vred. i bol.
8 no.9:11-13 S '63. (MIRA 16:10)

1. Gagrskiy molochno-ovoshchnoy sovkhov Gruzinskoy SSR.

SOKOLOV, N.N.

Supplement to the resolutions of the conference on marginal
formations proposed by N.N. Sokolov. Trudy Kom. chetv. per.
21:172 '63. (MIRA 16:10)

TELEPNEV, A.N., dotsent; SOKOLOV, N.N.

Dehydrating the paper web on suction boxes. Bum.prom.32 no.3:5-
7 Mr '57. (MLRA 10:4)

1. Leningradskiy Tekhnologicheskii institut imeni V.M. Molotova
(for Telepnev) 2. Nachal'nik laboratorii ispytaniya mashin NIIBum-
masha (for Sokolov).
(Paper industry)

SOKOLOV, N.N.

Histological analysis of the sexual cycle in the arctic fox [with
summary in English]. Zool. zhur. 36 no.7:1076-1083 J1 '57.
(MLBA 10:9)

1. Yakutskiy filial Akademii nauk SSSR.
(Arctic fox) (Reproduction)

SOKOLOV, N. N.; PARFANOVICH, M. I.

"An electron-microscope study of street and fix rabies viruses in brain sections of experimental animals and in partially purified virus suspension."

report submitted to 3rd European Regional Conf, Electron Microscopy, Prague, 26 Aug-3 Sep 64.

GOSTEVA, O.K.; PARBUZINA, I.L.; AKUTIN, M.S.; SOKOLOV, N.N.; RUNOVA, S.M.

Epoxy resins with higher thermal resistance. Chem prum 14 no.6:
304-306 Je '64.

1. State Research Institute of Plastics, Moscow.

SOKOLOV, N. N., Eng.

USSR/Electricity - Transmission Lines
Electric Power

Jul 50

"Characteristics of Long-Distance AC Transmission Lines," V. A. Venikov, Cand Tech Sci, Docent G. M. Rozanov, N. N. Sokolov, Engr, Moscow Power Eng Inst imeni Molotov

"Elektrichestvo" No 7, pp 8-16

Discusses basic problems in design of power-transmission lines, giving analysis of technical and economic characteristics of lines of 220, 400, and 440 kv. Describes characteristics of mechanical part of lines, calculates corona losses, and gives estimate of lightning protection capabilities.

PA 164T11

VENIKOV, V. A.; SOKOLOV, E. E.

Electric Lines

Remarks on N. N. Krachkovskiy's article "Estimating the carrying capacity of an electric transmission line on the basis of natural capacity." Elektrichestvo no. 9, 1952.

Monthly List of Russian Accessions, Library of Congress, December 1952. Unclassified.

ГОКОЛОВ, Н. Н.

"A New Adapter for Rectification Columns," Zavol'skaya Laboratoriya, Vol. 18, No. 7,
p 893, 1952.

SOKOLOV N. N.

4

621.115.031 : 621.316.727
 2696. Long-distance transmission circuits of large transmitting capacity. D. I. AZAREV, V. A. VENIKOV AND N. N. SOKOLOV. *Elektricheskoye*, 1953, No. 12, 3-10. ~~in Russian~~

An account of preparatory work for the erection of the 400 kV Kuibishev-Moscow transmission line covering a distance of > 900 km. The original plans foresaw the use of synchronous condensers inserted at certain distances along the line, but difficulties arose with the maintenance of static stability which would have required condenser ratings several times exceeding the transmitted power. However, this impossible situation could be obviated by the use of automatic excitation regulators on the synchronous condensers (without insensitivity zone), acting on voltage deviation, angle of lead or current deviation. The required rating of the synchronous condensers may be reduced by this means in the ratio of synchronous to transient reactance of the condenser, x_d/x_d' , i.e. about 5-7 times. The circuits presented enable large powers to be transmitted over distances of ~ 1000 km without requiring synchronous condensers of a rating > 0.25 of the transmitted power. Installation of reactors along the line is unnecessary. The circuits also enable regions near the intermediate substations to be supplied with power. Further increases of transmitting power are possible by judicious use of the excitation regulators.

F. KRALIS

3

PS

B. T. R.
Vol. 3 No. 4
Apr. 1954
Electrical Engineering

4
3 ELEC
02 PKD
/4770* Diagrams of High Voltage Long-Distance Trans-
mission Lines. (Russian.) D. I. Azarev, V. A. Venkov, and
N. N. Sokolov. Elektrichestvo, 1953, no. 12, Dec., p. 3-10.
Describes behavior of lines with intermediate synchronous com-
pensators. Discusses advantages. Tables, graphs, diagrams,
oscillogram.

6-3-54/p

So No 60, N. N.

AID P - 1999

Subject : USSR/Electricity

Card 1/2 Pub. 27 - 3/31

Authors : Azar'yev, D. I., Kand. of Tech. Sci., Dotsent,
Venikov, V. A., Doc. of Tech. Sci., Prof., and
Sokolov, N. N., Eng.

Title : ~~Long-distance transmission with intermediate synchronous~~
condensers

Periodical : Elektrichestro, 4, 11-16, Ap 1955

Abstract : The authors emphasize the expediency of constructing long-distance transmission lines with intermediate substations connecting power transmission with local distribution systems. The raising of transmitting capacity obtained by the use of synchronous condensers is further increased by a judicious use of the excitation regulators and by the compensation of the condenser reactance with static capacitors. The self-excitation conditions of the condensers are established with the help of Gorev-Park equations. Twelve diagrams, 2 Russian references (1953).

702366
RAKUSHEV, Nikolay Filippovich; SOKOLOV, N.N. redaktor; VORONIN, K.P.,
tekhnicheskii redaktor

[Closed circuit alternating current power transmission over very
long distances; fundamentals of theory and electric calculation]
Sverkhdal'niaia peredacha energii peremennym tokom po razomknutym
liniiam; osnovy teorii i elektricheskogo rascheta. Moskva, Gos.
energ.izd-vo, 1957. 159 p. (MLRA 10:6)
(Electric power distribution)

ROMANOV, A.D., dots; SOKOLOV, N.W., inzh.

Using a tension of 500 kv. for long-distance power transmission. Elek.
sta. 29 no.5:55-59 My '58. (MIRA 12:3)
(Electric power distribution--High tension)

LYSKOV, Yu.I., inzh.; SOKOLOV, N.N., inzh.

Characteristics of large tuned a.c. power transmission systems.
Elek. sta. 34 no.5:46-50 My '63. (MIRA 16:7)

(Electric power distribution—Alternating current)

AKOPYAN, A. A.; ALEKSANDROV, YEMELIANOV, N. P.; LEVITOV; MIROLYUBOV, NAYASHKOV, I. S.;
PANOV, A. V.; POPKOV, V. I.; ROKOTYAN, S. S.; SOKOLOV, N. N.; TIKHODEYEV, N. N.

"The 750 kV Experimental Commercial Transmission Line Konakovo-Moscow."

report submitted for 20th Biennial Sess, Intl Conf on Large Electric Systems,
Paris, 1-10 Jun 64.

AKOPYAN, A. A.; ALEKSANDROV, G. N.; YEMELIANOV, N. P.; LEVITOV, V. I.; MIROLYUBOV, A. V.
NAYASHKOV, I. S.; PANOV, A. V.; POPKOV, V. I.; ROKOTYAN, S. S.; SOKOLOV, N. N.;
TIKHODEYEV, N. N.

"The 750 kV Experimental Commercial Transmission Line Konakovo-Moscow."

report submitted for Intl Conf on Large Electric Systems, 20th Biennial Session,
Paris, 1-10 Jun 64.

SOVALOV, S.A., kand. tekhn. nauk; SOKOLOV, N.I., doktor tekhn. nauk;
SOKOLOV, N.N., inzh.

Carrying capacity of electric power transmission lines from
thermal electric power plants. Elek. sta. 35 no.2:73-79
F '64. (MIRA 17:6)

1. Ob"yedinennoye dispetcherskoye upravleniye Yedinoy ener-
geticheskoy sistemy SSSR (for Sovalov).
2. Vsesoyuznyy nauchno -
issledovatel'skiy institut elektroenergetiki (for N.I. Sokolov).
3. Energoset'proyekt (for N.N. Sokolov).

L 41141-65 EWT(1)

MISSION NR: AP5000962

S/0104/64/000/005/0060/0067

AUTHOR: Ly*skov, Yu. I. (Engineer); Sokolov, N. N. (Engineer);
Rokotvan, S. S. (Engineer)

6
B

TITLE: Long-distance power transmission at 750 kv

SOURCE: Elektricheskie stantsii, no. 5, 1964, 60-67

TOPIC TAGS: power transmission, power transmission line, power transmission
line 750 kv

ABSTRACT: Various design considerations regarding 750-kv power transmission lines are reported. Such lines have been tentatively designed for the future 4,500-Mw Bratsk, 5,000-Mw Krasnoyarsk, and other superpower hydroelectric stations. With rated 750 kv and a maximum operating voltage of 787 kv, the maximum permissible internal overvoltage is set at 2.1 U, where U is the rated phase-to-ground voltage. Four aluminum cables per phase (ASO-600 or ASO-700)

L 41141 -65

ACCESSION NR: AP5000962

are envisaged on the basis of corona loss, conductor load, radio interference, etc. D-c 750-kv lines are found to be suitable for longer distances and higher powers. Power reactors connected via switches and air gaps at both ends of the line are suggested to limit surges, control reactive power, and help in synchronization. Reactors as well as magnetic-valve lightning arresters capable of carrying 7--10 ka are jointly envisaged. Economic rough estimates are also supplied. Orig. art. has: 2 figures, 1 formula, and 4 tables.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: EE, PR

NO REF SOV: 006

OTHER: 000

cc
Card 2/2

ACCESSION NR: AT4045614

S/0000/64/000/000/0153/0176

AUTHOR: Ly*skov, Yu. I. (Head of electric power section); Sokolov, N. N. B
(Head of electric calculations section).

TITLE: Internal voltage overshoots and their prevention in 500 kv long transmission lines

SOURCE: Dal'niye elektropredachi 500 kv (Long-distance transmission of 500 kv. electric power); sbornik statey. Moscow, Izd-vo Energiya, 1964, 153-176

TOPIC TAGS: high voltage line, power line, electric power transmission, voltage overshoot, internal voltage overshoot, power line insulation, voltage stabilization, line voltage

ABSTRACT: An extensive review of voltage overshoot protection methods for high voltage transmission lines was undertaken in order to arrive at a set of specifications for a 500 kv line. Investigations of the existing 400 kv lines have shown that transient overshoots can reach a value of $3.5U_{\phi}$ (U_{ϕ} = phase voltage) and thus can exceed the insulation level of the line, which is only $2.5 U_{\phi}$. It was also determined that an increase in the line voltage from 400 kv to 500 kv is economically and technically feasible only if the insulation level can be kept the same. It is thus necessary to assure

Card 1/4

ACCESSION NR: AT4045614

that the transient overshoots on a line with a maximum working voltage of 525 kv never exceed $2.5 U_0$, where $U_0 = 525 \sqrt{2/\sqrt{3}}$ kv max. Two types of internal overshoots were investigated in detail: quasistationary, or those which persist on the line until they are removed, and transient overshoots which last up to several minutes. In the quasistationary group there are: resonance at fundamental frequency, self oscillation of generators, self oscillation at second harmonic, resonance at higher odd harmonics and subharmonic oscillations. All of these overshoots vary between 2.0 and $2.6 U_0$. The transient overshoots are generally larger and typically last for 0.12 - 0.15 sec. (the insulation level is computed for $2.5 U_0$ kv and 0.05 sec). The transient overshoots considered in detail are as follows: Turn-on transient of the line, overshoot due to disconnected load, overshoots on correctly working phases upon disconnecting a nonsymmetrical short, overshoots due to disconnecting a symmetrical short, overshoots due to disconnecting an asynchronous line, overshoots due to automatic reclosing, overshoots due to disconnecting an idle line with repeated triggering of the switch and overshoots due to disconnecting a small inductive current. The preventive measures investigated for application on a 500 kv line are: relay

Card 2/4

ACCESSION NR: AT4045614

protection and automatic switching, modifications in transformer design, shunt resistors for switches, spark gaps, electromagnetic transformers for discharge of disconnected lines, magnetic blowout dischargers of the type RVMK - 500, air blowout dischargers, continuously connected reactors, reactors connected through a spark gap, and an instantaneous increase in reactor power by use of a spark gap to short out the branch line at the point where the reactor is connected. A detailed discussion of the methods used to estimate the magnitude of various overshoots on a 500 kv line is given. The final choice of protective equipment includes: RVMK - 500 discharger for prevention of transient overshoots, permanently connected or spark-gap connected shunt reactors for prevention of quasistationary overshoots, electromagnetic transformers for discharge of line during zero current time due to automatic reclosing, and automatic relay protection to limit the duration of quasistationary overshoots. Recommendations are given for optimum placement of all devices on the line. Results of computations for the 500 kv line between the Volgograd hydroelectric plant and Moscow are cited as a numerical example. Orig. art. has: 1 equation, 9 figures and 4 tables.

Cord 3/4

ACCESSION NR: AT4045614

ASSOCIATION: Elektroenergeticheskiy otdel, Energoset'proyekt institut (Electric Power Section, "Energoset'proyekt' Institute)

SUBMITTED: 13Mar64

ENCL: 00

SUB CODE: EE

NO REF SOV: 023

OTHER: 000

Card 4/4

LYSKOV, Yu.I. (Moskva); SOKOLOV, N.N. (Moskva); AKODIS, M.M., doktor
tekhn. nauk (Sverdlovsk); GRITSUK, A.A., inzh. (Sverdlovsk)

Problem of long-distance power transmission. Prospects for
increasing the voltages of overhead power transmission lines.
Elektrichestvo no.10:81-85 O '64. (MIRA 17:12)

SIDOROV, B.N.; SOKOLOV, N.N.

Spindle blocking as a cause of the formation of polymorphous
nuclei in polyploid cells. TSitologiya 7 no.5:645-650
S-O '65. (MIRA 8:12)

1. Laboratoriya radiatsionnoy genetiki Instituta biofiziki
AN SSSR, Moskva. Submitted August 10, 1964.

5000-01, N.H.

Experimental studies of intermediate stages in catalysis. I. Intermediate compounds in the catalytic reaction of hydrogen peroxide and sodium molybdate. N. I. Kobozev and V. N. Sokolov. *J. Phys. Chem.* (U. S. S. R.) 4, 275-94 (1933). Red $\text{Na}_2\text{MoO}_4 \cdot n\text{H}_2\text{O}$ ($n = 2.5-3$) is prepd. from an aq. soln. of Na_2MoO_4 cooled to 0° by addn. of H_2O_2 . Alc. is added, the soln. cooled to -10° , and the red-brown crystals are filtered and washed with alc.-ether mixt. and dried in cold air. On being heated to $50-60^\circ$ the crystals decomp. into $\text{Na}_2\text{MoO}_4 + 2\text{O}_2$. Yellow $\text{Na}_2\text{MoO}_4 \cdot n\text{H}_2\text{O}$ is obtained by slow decompn. of thin layers of the red compl. at room temp. Na_2MoO_4 reacts with H_2O or with MnO_2 , Cr_2O_3 and WO_3 ions and active O atoms, to give Na_2MoO_4 . The heat of formation is 34 Cal. per O atom. The heats of neutralization for H_2MoO_4 , H_2MoO_5 and H_2MoO_6 are 21.7, 13.2 and 6.5 Cal., resp. Thermal decompn. takes place according to the mechanism: $\text{Na}_2\text{MoO}_4 + 4\text{H}_2\text{O} \rightarrow \text{Na}_2\text{MoO}_4 + 4\text{H}_2\text{O}_2$; $2\text{H}_2\text{O}_2 \rightarrow 2\text{H}_2\text{O} + \text{O}_2$. The catalytic decompn. with Pt is uninol. for both Na_2MoO_4 and Na_2MoO_5 . An intermediate Na_2MoO_4 results from $\text{Na}_2\text{MoO}_4 \rightarrow \text{Na}_2\text{MoO}_4 + \text{O}_2$; $\text{Na}_2\text{MoO}_4 + \text{Na}_2\text{MoO}_4 \rightarrow 2\text{Na}_2\text{MoO}_4$. The Arrhenius k_a values are $10^{10.3}$ and $10^{10.4}$, resp., and $q = 17.4$ Cal. for both.

F. H. Rathmann

ASAC-SLA METALLURGICAL LITERATURE CLASSIFICATION

CA SOKOLOV, M.

1ST AND 2ND ORDERS PROCESSES AND PROPERTIES UNDER

4

Physical-chemical investigations of the air depolarization in Leclanché cells. N. I. Koborev and N. N. Sokolov. *J. Applied Chem. U. S. S. R.* 7, 297-313 (1934).—A theoretical analysis is given of the performance of the Leclanché cell with the elimination of MnO₂ as depolarizer medium. The porosity of various C electrodes is studied, also the effect of air on the combination of H₂ with O₂ in the course of depolarization. The adsorption properties of carbons at temp. down to -100° are dealt. A. A. B.

ASAC-SLA METALLURGICAL LITERATURE CLASSIFICATION

REGIONAL DIVISION REGIONAL DIVISION

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z AA AB AC AD AE AF AG AH AI AJ AK AL AM AN AO AP AQ AR AS AT AU AV AW AX AY AZ BA BB BC BD BE BF BG BH BI BJ BK BL BM BN BO BP BQ BR BS BT BU BV BW BX BY BZ CA CB CC CD CE CF CG CH CI CJ CK CL CM CN CO CP CQ CR CS CT CU CV CW CX CY CZ DA DB DC DD DE DF DG DH DI DJ DK DL DM DN DO DP DQ DR DS DT DU DV DW DX DY DZ EA EB EC ED EE EF EG EH EI EJ EK EL EM EN EO EP EQ ER ES ET EU EV EW EX EY EZ FA FB FC FD FE FF FG FH FI FJ FK FL FM FN FO FP FQ FR FS FT FU FV FW FX FY FZ GA GB GC GD GE GF GG GH GI GJ GK GL GM GN GO GP GQ GR GS GT GU GV GW GX GY GZ HA HB HC HD HE HF HG HH HI HJ HK HL HM HN HO HP HQ HR HS HT HU HV HW HX HY HZ IA IB IC ID IE IF IG IH II IL IM IN IO IP IQ IR IS IT IU IV IW IX IY IZ JA JB JC JD JE JF JG JH JI JJ JK JL JM JN JO JP JQ JR JS JT JU JV JW JX JY JZ KA KB KC KD KE KF KG KH KI KJ KL KM KN KO KP KQ KR KS KT KU KV KW KX KY KZ LA LB LC LD LE LF LG LH LI LJ LK LL LM LN LO LP LQ LR LS LT LU LV LW LX LY LZ MA MB MC MD ME MF MG MH MI MJ MK ML MN MO MP MQ MR MS MT MU MV MW MX MY MZ NA NB NC ND NE NF NG NH NI NJ NK NL NO NP NQ NR NS NT NU NV NW NX NY NZ OA OB OC OD OE OF OG OH OI OJ OK OL OM ON OO OP OQ OR OS OT OU OV OW OX OY OZ PA PB PC PD PE PF PG PH PI PJ PK PL PM PN PO PP PQ PR PS PT PU PV PW PX PY PZ QA QB QC QD QE QF QG QH QI QJ QK QL QM QN QO QQ QR QS QT QU QV QW QX QY QZ RA RB RC RD RE RF RG RH RI RJ RK RL RM RN RO RP RQ RR RS RT RU RV RW RX RY RZ SA SB SC SD SE SF SG SH SI SJ SK SL SM SN SO SP SQ SR SS ST SU SV SW SX SY SZ TA TB TC TD TE TF TG TH TI TJ TK TL TM TN TO TP TQ TR TS TT TU TV TW TX TY TZ UA UB UC UD UE UF UG UH UI UJ UK UL UM UN UO UP UQ UR US UT UU UV UW UX UY UZ VA VB VC VD VE VF VG VH VI VJ VK VL VM VN VO VP VQ VR VS VT VU VW VX VY VZ WA WB WC WD WE WF WG WH WI WJ WK WL WM WN WO WP WQ WR WS WT WU WV WW WX WY WZ XA XB XC XD XE XF XG XH XI XJ XK XL XM XN XO XP XQ XR XS XT XU XV XW XX XY XZ YA YB YC YD YE YF YG YH YI YJ YK YL YM YN YO YP YQ YR YS YT YU YV YW YX YY YZ ZA ZB ZC ZD ZE ZF ZG ZH ZI ZJ ZK ZL ZM ZN ZO ZP ZQ ZR ZS ZT ZU ZV ZW ZX ZY ZZ

USSR/Chemistry - Organosilicon Compounds 21 Feb 52

"Chemistry of the Formation of Organopolysiloxanes," K. A. Andrianov, N. N. Sokolov

"Dok Ak Nauk SSSR" Vol LXXXII, No 6, pp 909-912

The formation of the following previously unknown dialkylsilanones during the decomn of organopolysiloxane was established using a mass spectrograph. Dimethylsilanone ($\text{Me}_2\text{Si} = \text{O}$), diphenylsilanone, dibutylenesilanone and diamylsilanone. Dimethylsilanone, dimethylsilanediol, and dimethylchlorosilanone were found after hydrolysis of dimethyldichlorosilane. The new data furthurs

21422

knowledge of the mechanism of formation of organopolysiloxanes by hydrolysis of organosilica monomers in an aq medium. They also provide a general scheme for the reactions taking place. Offers a new condensation-polymerization mechanism for the formation of organopolysiloxanes.

SOKOLOV, N. N.

21422

SOKOLOV, N. N.

USSR/ Chemistry - Hydrolysis

Card 1/1 Pub. 22 - 21/51

Authors : Andrianov, K. A., Memb. Corresp. of Acad. of Sc., USSR.; and Sokolov, N. N.

Title : The hydrolysis of difunctional silicon organic monomers

Periodical : Dok. AN SSSR 101/1, 81-84, Mar 1, 1955

Abstract : Data are presented regarding the effect of hydrolysis media on the formation of organopolysiloxanes. The immediate product of aqueous hydrolysis of silicon organic monomers is described. After the hydrolysis, water shows no further condensing effect on the products obtained. The method of determining volatiles (cyclic) in hydrolysis products is described. Six references: 4 USA and 2 USSR (1945-1953). Tables; graphs.

Institution : The V. I. Lenin All-Union Electrical Engineering Institute

Presented by : Jul; 2, 1954

Sokolov, N.N.

5
8
2 may

Mass-spectrometric study of organochlorosilanes. N.
N. Sokolov, K. A. Andrianov, and S. M. Akimova. *Zhur.*
Obshch. Khim. 25, 676-81 (1955); *J. Gen. Chem. U.S.S.R.*
25, 647-52 (Engl. translation).--In a mass-spectrometric
study of chlorosilanes it was shown that the probability of
cleavage of the R-Si bond decreases with increase of the
size of R. In RSiCl_3 the probability of cleavage of the
Si-Cl bond is twice that for the R-Si bond. In R_2SiCl_2 the
cleavage of the R-Si bond is predominant, but in R_3SiCl
the cleavage of Si-R is twice that of Si-Cl cleavage. A list
of ions and abundances is included for MeSiCl_3 , Me_2SiCl_2 ,
 Me_3SiCl , EtSiCl_3 , Et_2SiCl_2 , Et_3SiCl , PhSiCl_3 , MePhSiCl_2 ,
and SiCl_4 .
G. M. Kosolapoff

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Sokolov, N.N.

62 Thermal oxidation destruction of polysiloxanes. E. A. Andrianov and N. N. Sokolov. *Khim. Prom.* 1955, 329-35. Org. siloxanes with the linear chain structure are destroyed with the rupture of the Si-C and Si-O bonds. Polymers with a spatial mol. structure are destroyed with the rupture only of the Si-C bonds. A mechanism of thermal oxidation destruction is proposed based on the analysis of the solid and liquid destruction products of polyorg. siloxanes. The time of the half-destruction of polyorg. siloxanes at different temps. was detd. A relation was established between the resistance to thermal oxidation of polyorg. siloxanes and the types of org. radicals composing the polymers. An explanation is suggested for the different behavior during their thermal oxidation reactions. W. M. Sternberg

4/2/59

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MA

SOKOLOV, N. N.

USSR.

12289* Reaction of Epichlorhydrin and Glycidio Alcohol With Organochlorosilanes. O reakcii epikhlorgidrina i glistidnogo spirta s organokhlorsilanami. (Russian.) K. A. Andrianov, N. N. Sokolov, E. N. Khrustaleva, and L. N. Iukina. Izvestiya Akademii Nauk SSSR, Otdelenie Khimicheskikh Nauk, 1955, no. 3, May-June, p. 531-538.

Synthesis and properties of 12 compounds. Tables. 8 ref.

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62

Electrotech. Inst.-im. Lenina

SOKOLOV N. V.

Hydrolysis of difunctional organosilicon monomers
K. A. Andrianov and N. N. Sokolov. *Doklady Akad. Nauk S.S.S.R.* 101, 81-4 (1955); *Chem. Abstr.* 47, 4280g. $\text{Et}_2\text{Si}(\text{OH})_2$ in Et_2O was condensed in the presence of acids, bases or salts, the criterion of complete condensation being the time of transition of the crystals completely into an oily polysiloxane, detd. by sampling the org. layer. The content of cyclic volatile products was detd. by distn. of the mixt. to 200° at 35 mm. Thus, pure H_2O and Me_2SiCl_2 gave 54% cyclic products, aq. MeOH gave 83%, aq. EtOH gave 80%, aq. BuOH 70.5%, aq. Me_2CO 74%, aq. Et_2O 88.2%, aq. C_6H_6 60%, aq. MePh 59.2%, aq. xylene 60%, aq. KOH 24.9%, aq. NaHCO_3 33.1%, aq. CaCO_3 32.4%, Et_2SiCl_2 and aq. MgO gave 25.1% volatile products, aq. NaOH 24.5%, aq. Na_2CO_3 31%, concd. HCl 66.5%, 1:1 H_2SO_4 and Me_2SiCl_2 gave 55.5% volatile products, aq. CaCl_2 28.5%, aq. MgCl_2 45%. Et_2SiCl_2 and aq. Me_2CO gave 87% volatile products, aq. Et_2O 93.8%, aq. C_6H_6 79%, and aq. MePh 54.3%. Generally the amount of cyclic product formed depends on soly. of the intermediate $\text{R}_2\text{Si}(\text{OH})_2$ in the medium; the better the soly. the higher the yield of cyclic product. Soly. of $\text{Et}_2\text{Si}(\text{OH})_2$ in g. per 100 ml. solvent at 20° is: H_2O 0.7-10.8 (2 methods used gave slightly different results), EtOH 67.3-67.5, 50% EtOH 38.8, 20% EtOH 13.5, MeOH 111.9, BuOH 33.8, iso-AmOH 2.1, Et_2O 10.5, Me_2CO 29.7-30.4, C_6H_6 1.12, petr. ether (b. $80-100^\circ$) 0.35; insol. in CCl_4 , PhNO_2 , MePh , xylene, PhCl . $\text{Et}_2\text{Si}(\text{OH})_2$ does not condense even after 24 hrs. in AcOH or 12% NH_4OH , but is rapidly condensed in 0.1N HCl or 0.1N NaOH . HNO_3 and NaOH are more effective than are HCl or H_2SO_4 ; no condensation takes place in solns. of inorg. salts. Soly. of $\text{Et}_2\text{Si}(\text{OH})_2$ in H_2O rises from 5% at 0° to 16% at 40° .
G. M. Kosolapoff

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Sokolov, N.N.

6000

The isotope effect in the study of vapor pressure of liquid deuterio compounds. I. B. Rabinovich, N. N. Sokolov, and P. I. Artyukhin (State Univ., Gorki). *Doklady Akad. Nauk S.S.S.R.* 105, 702-5 (1955). — The temp. relations of vapor pressures were studied for the following compds. having deuterium substituted in the OH, NH, and COOH groups: iso- and n-PrOH, aniline, and acetic, butyric, isobutyric, and isovaleric acids. The aces. were prepd. from the aluminates; the AcOH from the anhydride and heavy water. The rest of the compds. listed were made by repeated double-exchange reactions with heavy water satd. with NaCl. The D concn. in the OH, NH, and COOH groups was not below 99%. The heats of evapn. were calcd. from the exptl. vapor-pressure values by the Clapeyron-Clausius equation, and from it the isotope effect in heats of vaporization, or the difference between the heats of vaporization of the D and H compds.

W. M. S.

3

PM

ANDRIANOV, K.A.; SOKOLOV, N.N., Kandidat tekhnicheskikh nauk.

Thermoelasticity of organosilicon dielectrics. Elektrichestvo no.6:
31-34 Je '56. (MIRA 9:9)

1.Chlen-korrespondent AN SSSR (for Andrianov). 2. Vsesoyuznyy elektrotekhnicheskii institut imeni Lenina.
(Silicon organic compounds)(Electric insulators and insulation--Testing)
(Dielectrics)

SOKOLOV, N.N.; ANDRIANOV, K.A.; AKIMOVA, S.M.

Research in the field of organocyclosiloxanes. Part 1. Methylchlorocyclosiloxanes. Zhur.ob.khim. 26 no.3:933-936 Mr '56. (MLBA 9:8)

1. Vsesoyuznyy elektrotekhnicheskiy institut.
(Cyclosiloxanes)

Sokolov, N.N.

hms Organocyclosiloxanes. I. Methylchlorocyclosiloxanes. *3*
N. N. Sokolov, K. A. Andrianov, and S. M. Akimova.
J. Gen. Chem. U.S.S.R. 26, 1081-3(1956)(English trans-
lation).—See *C.A.* 50, 14782c. B. M. R. -

ANDRIANOV, K.A.; SOKOLOV, N.N.; KHRUSTALEVA, Ye.N.

Reactions of the formation of polyorganosiloxanes by heterofunctional condensation. Zhur.ob.khim. 26 no.4:1102-1107 Ap '56.
(MLRA 9:8)

1. Vsesoyuznyy elektrotekhnicheskiy institut.
(Siloxanes)

ANDRIANOV, K.A.; GANIHA, T.N.; SOKOLOV, N.N.

Heterofunctional condensation of organoethoxy- and organochloro-silanes. Zhur.ob.khim. 26 no.6:1691-1695 Je '56. (MIRA 11:1)

1.Vsesoyuznyy elektrotekhnicheskiy institut.
(Condensation) (Silane)

SOKOLOV, N. N.

Heterofunctional condensation of organothoxy and
organochloro silanes. / K. A. Andrianov, P. N. Ganina, and
N. N. Sokolov. *J. Gen. Chem. U.S.S.R.* 26, 1897-1900
(1956) (English translation).—See *C.A.* 51, 2807d.

B. M. R.

USSR/Organic Chemistry. Synthetic Organic Chemistry. E-2

Abs Jour: Ref Zhur - Khimiya, No. 8, 1957, 26885.

Author : Sokolov, N.N.; Akimova, S.M.

Inst :

Title : Research in Region of Organocyclosiloxanes.
II. Ethylchlorocyclosiloxanes.

Orig Pub: Zh. obshch. khimii, 1956, 26, No. 8, 2276 - 2279.

Abstract: The following $(C_2H_5SiHO)_n$ (Ia - Ic) (Ia: $n=3$, Ib: $n=4$, Ic: $n=5$) were produced by the hydrolysis of $C_2H_5SiHCl_2$ with a mixture of water and C_2H_5OH (the yield in %, boiling point in $^{\circ}C/mm$, n^{20}_D and d^{20}_{20} are enumerated): Ia - 48, 105/20, 1.4153, 0.9835, melting point 100° ;

Card 1/4

APPROVED FOR RELEASE: 08/25/2000 CIA-RDP86-00513R001652020005-0"

USSR/Organic Chemistry. Synthetic Organic Chemistry. E-2

Abs Jour: Ref Zhur - Khimiya, No. 8, 1957, 26886.

Ib - 33, 136.2/20, 1.4178, 0.9922; Ic - 11, 165.2/20, 1.4222, 1.0012. A mixture of 1,3,5-triethyl-1-chlorocyclotrisiloxane (II), boiling point $125^{\circ}/20$ mm, melting point -65° , $d^{20}_{20} = 1.0876$, of 1,3,5-triethyl-1,3-dichlorocyclosiloxane (III), boiling point $150-151^{\circ}/20$ mm, melting point -60° , $d^{20}_{20} = 1.1928$, and of tri-(ethylchloro)-cyclotrisiloxane (IV), boiling point $126-127^{\circ}/2$ mm, melting point -43° , $d^{20}_{20} = 1.2591$, was received at the chlorination

Card 2/4

Sokolov, N.N.

Distr: 4E2c(j)

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Solidifying electro-insulating composition. K. A. Andri-
anov, N. N. Sokolov, L. N. Yukina, M. S. Rokitskaya, A.
G. Preikova, A. V. Koval'skaya, B. A. Zil'bershtein, D. N.
Spivak, and L. Z. Arkus. U.S.S.R. 108,533, Dec. 26, 1957.
An electro-insulating compn. capable of giving a porous and
hardening product is obtained by the interaction of epoxy
and polyester resins. Compns. contg. castor oil and maleic
acid or its anhydride are used as the polyesters.

M. Haseh

gaf

SOKOLOV, N.N.; ANDRIANOV, K.A.

Synthesis of alkylchlorosiloxanes using the heterofunctional
condensation method. Izv.AN SSSR.Otd.khim.nauk. no.7:806-811
Jl '57. (MIRA 10:10)

1.Vsesoyuznyy elektrotekhnicheskiy institut im. V.I. Lenina.
(Siloxanes)

84146

S/112/59/000/013/011/067

A002/A001

5.3700

Translation from: Referativnyy zhurnal, Elektrotehnika, 1959, No. 13, p. 13,
26248

AUTHOR: Andrianov, K. A., Sokolov, N. N., Golubenko, M. A., Shostenko, G. S.,
Yukina, L. N.

TITLE: Direct Synthesis of Alkyl- and Arylchlorsilanes

PERIODICAL: Tr. Vses. elektrotekhn. in-ta, 1958, No. 62, pp. 5-15

TEXT: The direct synthesis of organic chlorsilanes was suggested by Myuller and Rokhov in 1942-1945. The method is based on the property of elemental Si to enter into a reaction with halogenes and organic halides at higher temperatures, forming chlorsilanes and organic chlorsilanes. Cu is one of the best catalysts in this direct synthesis. The authors discuss the results of experimental data of the direct synthesis obtained at VEI in 1946. Ferrosilicon can be used instead of pure Si. The synthesis of ethyl, vinyl, and phenyl chlorsilanes is described briefly. A theory of the direct synthesis of organic chlorsilanes as a heterogeneous catalysis process at high temperatures has not yet been developed. There are 13 references. A. O. M.

Translator's note: This is the full translation of the original Russian abstract.
Card 1/1

SOV/62-58-8-14/22

AUTHORS: Andrianov, K. A., Nikitenkov, V. Ye., Kukharuk, L. A.;
Sokolev, N. N.

TITLE: The Synthesis of Organosilicon Compounds With Phenylene-Siloxane Chains of the Molecules (Sintez kremneorganicheskikh sovedineniy s fenilensiloksannymi tsepyami molekul)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk, 1958, Nr 8, pp. 1004-1006 (USSR)

ABSTRACT: In the present report the authors describe the first representatives of the compounds with phenylene siloxane chains of the molecules surrounded by methyl groups. These were produced by the authors by means of the action of magnesium on p-dibromobenzene with a subsequent decomposition of the Grignard reagent by dimethyl dichlorosilane. As was found by the experiment the 1,4-bis-(dimethyl chlorosilane) benzene was formed in the reaction carried out. In the investigation of further reactions two condensation products were synthesized (condensation of 1,4-bis-(dimethyl chlorosilane) benzene). In preparing the monomers for the synthesis of compounds with

Card 1/2

SOV/62-58-8-14/22

The Synthesis of Organosilicon Compounds With Phenylene-Siloxane Chains of the Molecules

phenylene siloxane chains surrounded by methyl-phenyl groups, the 1,3-(methyl-phenylchloro) disiloxane was separated which has hitherto not been described in publications.

ASSOCIATION: Vsesoyuznyy elektrotekhnicheskiy institut im. V. I. Lenina
(All-Union Institute of Electrical Engineering imeni V. I. Lenin)

SUBMITTED: March 1, 1958

Card 2/2

SOKOLOV, N.N.

Cyclosiloxanes. Part 3: Application of destructive thermal oxidation to structural study of hydrolysis products of alkyl trichlorosilanes. Zhur.ob.khim. 28 no.9:2578-2582 S '58. (MIRA 11:11)

1. Vsesoyuznyy elektrotekhnicheskiy institut.
(Silane)

AUTHOR: Sokolov, N. N. SOV/79-28-12-38/41

TITLE: Investigations in the Field of Organo-Cyclosiloxanes (Issledovaniya v oblasti organotsiklosiloksanov) IV. The Reactivity of Organo-Cyclosiloxanes in Dependence on the Number of Members of the Cycle (IV. Reaktsionnosposobnost' organotsiklosiloksanov v zavisimosti ot kolichestva zven'ev v tsikle)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 12, pp 3326 - 3333 (USSR)

ABSTRACT: There are almost no papers on the reactivity of organo-cyclosiloxanes. The paper (Ref 7) on the different reactivity of dibutoxy cyclosiloxanes must be mentioned. The author used in his experiments cyclic compounds which differ in their number of Si-H bonds and in different radicals at the silicon. The polymerization rate of the cycles with the Si-H bond in the cycle was higher than that of the cycles with alkyl radicals, and it was lower on the application of solvents. With increasing dipolar moment of the solvent the polymerization rate increases, characterized by the change of the relative viscosity (η) of the 10% benzene solution (Table 1). In figure 1 the results of the determination of

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Investigations in the Field of Organo-Cyclosiloxanes. SOV/79-28-12-38/41
IV. The Reactivity of Organo-Cyclosiloxanes in Dependence on the Number of
Members of the Cycle

η of the solution of one gram dimethyl polysiloxane rubber in 49 grams of toluene or chloro benzene in the presence of 4% sulfuric acid are mentioned. Figure 2 shows the polymerization kinetics of the organo-cyclosiloxanes with the Si-H bond, figure 3 that without such a bond. In table 2 the polymerization rates of organocyclo-siloxanes are mentioned. Conclusion: It may be said that the dependence of the reactivity of organo-cyclosiloxanes on the magnitude of the cycles was proved by the polymerization and reduction reactions carried out. It was found that with increasing number of the members in the cycles and with increasing substituents at the silicon the polymerizability decreases. The cyclic trimers show a higher reactivity, especially trimethyl cyclotrisiloxane, the hydrogen of which shows high nucleophilic properties in combination with Si-H. There are 3 figures, 1 table, and 19 references, 4 of which are Soviet.

Card 2/3

Investigations in the Field of Organo-Cyclosiloxanes. SOV/79-28-12-38/41
IV. The Reactivity of Organo-Cyclosiloxanes in Dependence on the Number of
Members of the Cycle

ASSOCIATION: Vsesoyuznyy elektrotekhnicheskiy institut (All-Union Electro-
technical Institute)

SUBMITTED: July 12, 1957

Card 3/3

5(3)

PHASE I BOOK EXPLOITATION

SOV/2272

Sokolov, Nikolay Nikolayevich

Metody sinteza poliorganosiloksanov (Methods of Synthesizing Polyorgano-siloxanes) Moscow, Gosenergoizdat, 1959. 198 p. (Series: Vsesoyuznyy elektrotekhnicheskiy institut. Trudy, vyp. 66) 1,900 copies printed.

Ed.: V. I. Timokhina; Tech. Ed.: K. P. Voronin; Editorial Board of Series: K. A. Andrianov, A. A. Akopyan, V. G. Biryukov (Chief Ed.), G. V. Butkevich, V. L. Granovskiy, G. R. Gertsenberg, K. I. Zabyrina, V. I. Kalitvyanskiy, B. N. Klyarfel'd, A. A. Sakovich, P. V. Timofeyev, V. G. Fastovskiy, Ye. M. Tseyrov, A. Ya. Fridman, A. M. Shemayev.

PURPOSE: This book is intended for chemical engineers and scientists specializing in the chemistry of organosilicon compounds.

COVERAGE: The book gives a systematic presentation of methods used in synthesizing organosilicon polymers and describes the most important of these methods in detail. Special attention is given to the synthesis of polyorganosiloxanes, particularly the composition and structure of synthesized polymers. In studying the composition and structure of hydrolysis products, the kinetics of hetero-functional condensation, the mechanism of oxythermal destruction, the influence

Card 1/4

Methods of Synthesizing(Cont.)

SOV/2272

of the structure of cyclic organosiloxanes on their polymerization capacity, the structure of polyorganosiloxanes (with an electron microscope), and other problems, the author draws conclusions from his own experiences and hypothesizes on the basis of theoretical explanations for recurring phenomena. The following persons participated in the laboratory experiments (Ch. VI): A. P. Balyayeva, A. I. Ikonnekova and Z. M. Kuptsova - analysis; S. L. Pupko - electron microscopy; K. V. Krylov - roentgenography; A. A. Sakovich and R. I. Grigoryeva - mass spectroscopy. The author thanks K. A. Andrianov, corresponding member of the Academy of Sciences, USSR. There are 357 references: 170 Soviet, 177 English, 3 Polish, 1 Swedish, 1 French, 1 Czech, and 4 German.

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Methods of Synthesizing(Cont.)

SOV/2272

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Methods of Synthesizing (Cont.)

SOV/2272

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AVAILABLE: Library of Congress	

Card 4/4

TM/mg
10-5-59

AUTHOR: Sokolov, N. N.

SOV/79-29-1-53/74

TITLE: Investigations in the Field of Organo-Cyclosiloxanes (Issledovaniya v oblasti organotsiklosiloksanov) V. Alkyl Cyclo-tetrasiloxanes With Functional Groups (V. Alkiltsiklotetrasiloksany s funktsional'nyimi gruppami)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 1, pp 248 - 253 (USSR)

ABSTRACT: In a previous paper (Refs 1,2) the authors described several organo-cyclosiloxanes with functional groups (H, Cl) on the silicon atoms. This paper gives a description of the synthesis of alkyl cyclosiloxanes with functional groups on the silicon according to the method of synhydrolysis of dimethyl dichloro silane with methyl dichloro silane or ethyl dichloro silane in the molar ratio 1:0.5. In the case of these monomers entering synhydrolysis, cyclic compounds form with mixed members in the cycle, as shown by the experiment. The arrangement of the hydrogen atom which is connected with silicon makes the synthesis of further derivatives possible. The cyclic compounds were separated and rectified according to synhydrolysis. The

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Investigations in the Field of Organo-Cyclosiloxanes.
V. Alkyl Cyclotetrasiloxanes With Functional Groups

SOV/79-29-1-53/74

remaining normal and higher cyclic compounds were subjected to thermal regrouping at 300-360° and the fluid regrouping products obtained were rectified. It was found that with these two methods cyclic compounds with mixed members are formed. Table 1 gives the constants of the separated tetramers. In the course of thermal regrouping the cyclic tetramers form in the same quantities as in the case of hydrolysis (Table 2). In the case of synhydrolysis 14 alkyl cyclotetrasiloxanes with H, Cl, OH on the silicon atoms were obtained (see the other tables). There are 6 tables and 2 Soviet references.

ASSOCIATION: Vsesoyuznyy elektrotekhnicheskiy institut (All-Union Electrotechnical Institute)

SUBMITTED: July 15, 1957

Card 2/2

AUTHOR: Sokolov, N. N.

20070-11-1-1/74

TITLE: Investigations in the Field of Organo-Cyclosiloxanes
(Issledovaniya v oblasti organotsiklosiloksanov)
VI. Cyclization in the Synhydrolysis of Alkaline Di- and
Trichlorosilanes (VI. Tsikloobrazovaniye pri sogidrolize
alkildi- i trikhlorosilanov)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 1, pp 253-258 (USSR)

ABSTRACT: The most important synhydrolysis for practical purposes, namely that of monomers with the functional positions two and three, has been subjected to ~~practically no theoretical investigations;~~ theoretical point of view; nor has the structure of the products of synhydrolysis been exactly determined; this is understandable since the products of trimeric polycondensation are concerned. In view of the marked inclination towards cyclization by organo-silicon monomers in the course of hydrolysis the formation of cyclo-chain-structures obviously takes place during synhydrolysis of monomers with the functional positions two and three. For the investigation of the structure of polymers with these positions the author chose the synhydrolysis between previously synthesized (Ref 4) hexamethylene-1,5-dichloro-cyclo-tetra-siloxane and dimethylenedichlorosilane in order

Card 1/3

Investigations in the Field of Organo-Cyclosiloxanes. . . 08/25/2000-1-54/74
VI. Cyclization in the Synhydrolysis of Alkaline Di- and Trichlorosilanes

to get to cyclo-chain-structures and to compare them with the products of synhydrolysis of methylene-trichlorosilane and dimethylene-dichlorosilane. The combined hydrolysis $(\text{CH}_3)_2\text{SiCl}_2$ plus CH_3SiCl_3 was carried out under different molar conditions listed in table 1. The hydrolyzates were subjected to polymerization with a diluted solution of 50% KOH at 21° up to the point where gel was formed. Table 1 shows that the product of hydrolysis of dimethylene-chlorosilane itself forms no gel within a period of more than 48 hours. The introduction of 1 mole of hexamethylene-1,5-dichloro-cyclo-tetrasiloxane to 50 moles of dimethylene-dichlorosilane causes polymerization within 245 minutes. The period of formation of gel decreases sharply at a 1:10 ratio of these components and attains a minimum (4 minutes) at a ratio of 1:1. Table 2 shows that cycles of silsesquioxane—links are easily polymerized.

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Investigations in the Field of Organo-Cyclosiloxanes. SOV/79-29-154/74/75
VI. Cyclization in the Synhydrolysis of Alkaline Di- and Trichlorosilanes

It was demonstrated that these cycles form in the synhydrolysis of dimethylenedi- and methylene-trichlorosilanes.

The silsesquioxane-links in the alkylene cyclo siloxanes polymerize more quickly than the siloxane links.

There are 1 figure, 2 tables, and 5 references, 4 of which are Soviet.

ASSOCIATION: Vsesoyuznyy elektrotekhnicheskiy institut
(All-Union Electrotechnical Institute)

SUBMITTED: July 15, 1957

Card 3/3

AUTHOR: Sokolov, N. F. SOV/79-29-1-55/74

TITLE: Investigations in the Field of Organo-Cyclosiloxanes (Issledovaniya v oblasti organotsiklosiloksanov) VII. **Cyclization in the Hydrolysis of Alkyl Chloro**
Siloxanes (VII. Tsikloobrazovaniye pri gidrolize alkilkhlorosiloksanov)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 1, pp 258 - 263 (USSR)

ABSTRACT: By the method of heterofunctional polycondensation alkyl siloxanes with functional groups can be synthesized, specifically those with mixed members (Ref 1). These alkyl siloxanes can be used for the synthesis of new compounds. Apart from this their entire analysis may be of interest as well as up to the stage of formation of hydroxy silanes for the investigation of hydrolysis regularities in general, specifically for the clarification of the degree of cycle formation in case of hydrolysis. The alkyl- α, ω -dichloro siloxanes can be used for the synthesis of the corresponding dihydroxy siloxanes. The best way of carrying out hydrolysis

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Investigations in the Field of Organo-Cyclosiloxanes.

SOV/79-29-1-55/74

VII. Cyclization in the Hydrolysis of Alkyl Chloro

Siloxanes

is cooling up to $+5^{\circ}$ in a diethyl ether medium under rapid addition of chloro silane to the solution of caustic soda (Ref 2). By hydrolysis under the given conditions hydroxy derivatives of the series $\text{HO}[\text{Si}(\text{CH}_3)_2\text{O}]_{2-5}\text{H}$ were obtained

from the α,ω -dichloro siloxanes; the properties of the products are mentioned in table 1. Hydrolysis of dimethyl- α,ω -dichloro siloxanes in an acid medium (Table 2) yields as well as the hydrolysis of dimethyl-dichloro siloxanes about 50% normal and 50% cyclic compounds (volatile at 200°) with the exception of hexamethyl-1,5-dichloro tri-siloxane which has not more than 12% cyclic compounds. Table 3 gives the alkyl cyclosiloxanes, obtained by hydrolysis of alkyl chloro siloxanes and table 4 their constants. Compounds (III) and (IV) have hitherto been unknown. A new synthesis was carried out with three dimethyl- α,ω -di-hydroxy silanes and 8 alkyl cyclosiloxanes with mixed members Si-O. It was found that the hydrolysis of alkyl chloro siloxanes shows the same regularities with respect to the

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Investigations in the Field of Organo-Cyclosiloxanes. SOV/79-29-1-55/74
VII. Cyclization in the Hydrolysis of Alkyl Chloro
Siloxanes

formation of the cycle as alkyl chloro silanes. There are
4 tables and 5 references, 1 of which is Soviet.

ASSOCIATION: Vsesoyuznyy elektrotekhnicheskiy institut (All-Union
Electrotechnical Institute)

SUBMITTED: July 15, 1957

Card 3/3

KARINA, T.L.; ANDRIANOV, K.A.; SOKOLOV, N.N.

Polyurethan lacquers for the production of lacquer glass fibers.
Lakokras.mat. i ikh prim. no.2:1-5 '60. (MIRA 14:4)
(Glass fibers) (Urethans)
(Lacquers and lacquering)

Sokolov, N. N.

S/190/60/002/01/19/021
B004/B061

5.3700 ✓
AUTHORS:

Andrianov, K. A., Nikitenko, V. Ye., Sokolov, N. N. 82086

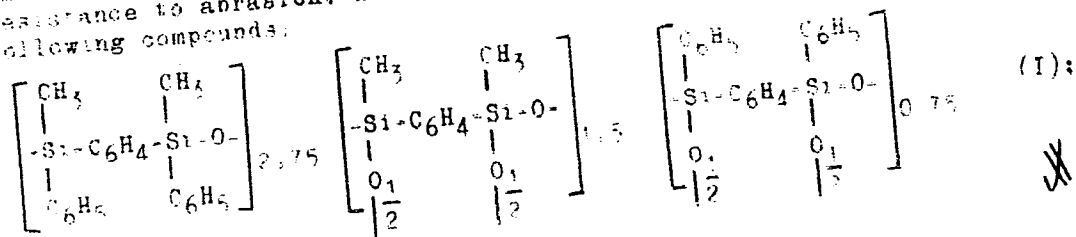
TITLE:

Comparison of the Properties of Polymers With
Polysiloxane and Phenylsiloxane Chains in the Molecule

PERIODICAL

Vysokomolekulyarnyye soedineniya. 1960. Vol. 2. No. 1,
pp. 158-161

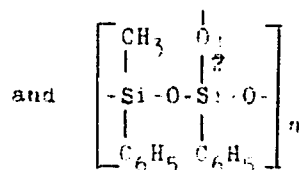
TEXT The authors compare the thermoelectricity at 300°C, the mechanical resistance to abrasion, and the loss of weight at 300°C of the following compounds:



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Comparison of the Properties of Polymers With
Polysiloxane and Phenylsiloxane Chains in
the Molecule

S/190/60/002/01/19/021
B004/B061
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(IV). In polymer (I) the ratio of bifunctional to

trifunctional groups is 55 : 45. in compound (III) it is 1 : 1. Compound (III) forms bright, white crystals, melting point 84 - 85°C, soluble in acetone, benzene, chlorobenzene, carbon tetrachloride, and ether, insoluble in methanol, ethanol, and water. Under loss of water on being heated, (III) is converted into the steric polymer (IIIa). The properties of the polymers are given in a Table. Polymers (IIIa) and (IV) contain less methyl- and more phenyl radicals than (I) and (II). This small change has the following effect on the properties. The loss of weight at 300°C is considerably smaller than with (I) and (II). The thermo-elasticity and resistance to abrasion of (IIIa) are very small; this polymer is brittle as a result of the large concentration of phenyl-

Card 3/4

ANDRIANOV, K.A.; GRIBANOVA, O.I.; SOKOLOV, N.N.; TIRKONOV, V.S.

Means for increasing the mechanical strength of organosilicon enamels.
Iakokras.mat. i ikh prim. no.4:10-13 '60. (MIRA 13:10)
(Silicon organic compounds) (Enamel and enameling)

15.8106

2109, 1526, 1460, 2209

81506
S/190/60/002/004/007/020
B004/B056

AUTHORS: Andrianov, K. A., Parbuzina, I. L., Sokolov, N. N.
TITLE: Polymers on the Basis of 4,4'-Dihydroxydiphenylpropane and Phthalic Acids
PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 4, pp. 518-520

TEXT: In the present paper, the authors report on the condensation of 4,4'-dihydroxydiphenylpropane with phthalic acid, isophthalic acid, and the dimethyl ester of terephthalic acid. The reaction develops in nitrogen at 250°C and forms, with phthalic acid, a polymer having a melting point of 105°C and, with isophthalic acid, a polymer with a melting point of 260°C. As terephthalic acid sublimates at high temperatures, the reaction was carried out with its dimethyl ester in the presence of lead oxide at 300°C. The resulting polymer had a melting point of 280°C. As shown by the Fig., the viscosity during the polymerization increases first rises slowly and then with increasing

Card 1/2

Polymers on the Basis of
4,4'-Dihydroxydiphenylpropane and Phthalic
Acids

84506

S/190/60/002/004/007/020
B004/B056

rapidity. A Table gives melting points and viscosity for dissolution in
cresol. These polymers are tested for their applicability as components
of block copolymerization. The authors mention papers by V. V. Korshak
and S. V. Vinogradova (Refs. 4 and 6). The thermomechanical properties
were investigated by means of the scale designed by V. A. Kargin (Ref. 7).
There are 1 figure, 1 table, and 7 references: 3 Soviet, 1 US, 2 British,
and 1 Belgian. ✓

ASSOCIATION: Vsesoyuznyy elektrotekhnicheskiy institut (All-Union
Electrotechnical Institute)

SUBMITTED: December 28, 1959

Card 2/2

15.8114 2109,2209,1436

84507
S/190/60/002/004/008/020
B004/B056

AUTHORS: Andrianov, K. A., Gribanova, O. I., Prelkova, A. G.,
Sokolov, N. N., Sun' Shu-men

TITLE: Investigation of the Reaction of Polycondensation of
Polyethyleneterephthalate and Polyorganoethoxysiloxanes

PERIODICAL: Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 4,
pp. 521-525

TEXT: In order to give greater mechanical strength and better adhesion
to polyorganosiloxane resins, the authors studied the modifying of
polymethylphenylsiloxanes by means of polyethyleneterephthalate. As
initial substances for the synthesis of the organic silicon compounds,
methylphenylethoxychlorosilane and phenyltriethoxysilane in a ratio of
1 : 0.5 were used. The hydrogen chloride formed in the reaction and the
acetoacetic ester were distilled off, so that, as shown by Table 1, only
a slight hydrolysis occurred. The molecular weight of the poly-
organosilanes was 600 - 800. As a second component for the copolymer,

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Investigation of the Reaction of
Polycondensation of Polyethyleneterephthalate
and Polyorganoethoxysiloxanes

84507
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B004/B056

the polycondensation product of the methyl ester of terephthalic acid with multivalent alcohols, synthesized by a method described in Ref. 2, was used. It has the following structural formula:

$$\text{EO} \left[\text{CH}_2\text{CH}_2\text{OC} \begin{array}{c} \text{O} \\ \parallel \\ \text{C}_6\text{H}_4 \end{array} \text{CO} \right]_n \cdot \text{CH}_2\text{CH}_2\text{OH} .$$
 The molecular weight was 450 - 510.

Copolymerization began at 130°C with the liberation of ethanol (Table 2), and was finished at 190°C. The copolymer obtained had good mechanical, thermal, and dielectric properties. As mentioned in Table 3, its hardness is somewhat less than that of polyethyleneterephthalate, but greater than that of polyorganosiloxanes. A Fig. shows that the loss in weight due to aging at 250°C is less than in the case of polyethyleneterephthalate, and approaches that of polyorganosiloxane films. The breakdown voltage in dry films amounted to 120-140 kv/mm at 120°C. There are 1 figure, 3 tables, and 2 references: 1 Soviet and 1 US.

Card 2/3